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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HARPER, HOLLY R

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/759,746

Applicant(s)

CATHEY, DAVID A.

Examiner

Holly R. Harper

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 1-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 23-32 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Response to Amendment

1. Preliminary Amendments A to the Specification, Drawings, and Claims, filed on 01/12/01, has been entered and acknowledged by the Examiner.
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Claims 1-22 were canceled. Claims 23-32 were added.

2. Preliminary Amendment B to the Specification, filed on 02/08/02, has been entered and acknowledged by the Examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bol (USPN 5,269,877) in view of Yeh et al. (USPN 4,400,866) in further view of Brodie (USPN 5,063,327).

In regard to claims 23-27, 31, 32, the Bol reference discloses an emitter comprising a substrate. The substrate has a planar surface and at least one protuberance (Figure 6). Bol discloses an emitter having a substrate (12) formed of a homogenous first material (Column 3, Line 16), a tapered protuberance (22) integrally from the first material with a base (24) and an apex (26), and a dopant gradient (Column 3, Lines 25-

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27). It is noted that the claimed process by Bol for making a tip, as recited in claim 1, does not include a base substrate. Bol claimed a process for forming a tip microstructure directly from a single layer substrate. Bol teaches forming a poly-silicon layer 12 on a silicon substrate 10. It is noted that a semiconducting substrate is an art recognized equivalent to a poly-silicon layer or a silicon substrate for the purpose of forming a semiconducting device. See Yeh et al. (Column 4, Line 67 – Column 5, Line 2) incorporated by reference by Bol (Column 3, Line 48-53). It would have been obvious to use a semiconducting substrate instead of a poly-silicon layer on a silicon substrate, as disclosed by Bol, because the two structures are art recognized equivalents for the purpose of forming a semiconducting device as evidenced by Yeh.

Bol is silent as to a dopant concentration that is zero at the base. It is the position of the examiner that specifying a dopant gradient is within the skill of the art. See Bol (Column 3, Lines 49-57). See Yeh (Column 4, Lines 10-15, wherein the doping level is selected to give the desired oxidation rate). It is noted that the specification does not teach that the subject limitation solves any problems over the prior art, or has any unexpected advantages over the prior art. Consequently, it would appear that the subject limitation is, at best, an arbitrary design choice within the skill of one having ordinary skill within the art. It would have been obvious to have a dopant gradient of zero at the base of the emitter as disclosed by Bol because the specification of the dopant gradient is within the skill of the art, as evidenced by Yeh.

Bol in view of Yeh discloses an emitter device. Bol is silent as to the emitter disposed in a pixel, display panel, or an FED. Bol teaches that the emitter (tips 43) provides for ease of manufacturing. Brodie discloses an emitter disposed in a pixel (36)

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or a display device (Fig 1). It would have been obvious to dispose the emitter, as disclosed by Bol, in a pixel or display panel, as disclosed by Brodie, to simplify manufacturing.

Claims 27-30 are directed to product-by-process claim limitations and are not afforded patentable weight. Furthermore, it is noted that the functional language of a "etch-resistible quantity" or "oxidizable quantity" is intrinsic to the dopant concentration gradient. Consequently, the subject claims are rejected for the same reasons as claim 27.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Harper whose telephone number is (703) 305-7908. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Holly Harper
Patent Examiner
Art Unit 2879



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